

**From:** [Fencil, Jeffrey](#)  
**To:** [EOC Water](#); [Allenbach, Becky](#); [Apanian, David M.](#); [Bissonette, Eric](#); [Brown, Jamesr](#); [Carroll, Craig](#); [Casillas, Laura](#); [Cooper, Tiffany](#); [Diaz, Denisse](#); [Dwyer, Stacey](#); [EOC Environmental Unit](#); [EOC Situation Unit](#); [Eoc, Epahq](#); [FEMA R2 ESF#10 Desk](#); [FEMA-NRCC-ohs@fema.dhs.gov](#); [fema-nrcc-ohul@fema.dhs.gov](#); [Forsgren, Lee](#); [Foster, Althea](#); [Geliga, Jaime](#); [Goldbloom-Helzner, David](#); [Gray, David](#); [Greenwalt, Sarah](#); [Honker, William](#); [Hosch, Claudia](#); [Ison, Dawn](#); [Kogan, Joshua](#); [Liguori, Alex](#); [McCasland, Mark](#); [Miller, Gary](#); [Negron, Nesmarie](#); [Newberry, Debbie](#); [Ngo, Kim](#); [Oh, Peter](#); [OW SES Managers and Supervisors](#); [Pabst, Douglas](#); [Pellegrino, Carl](#); [Pickard, Brian](#); [Restivo, Angela](#); [Rodriguez, Jose](#); [Senft, Lea](#); [Smalley, Bryant](#); [Thomas, Chris](#); [Tiago, Joseph](#); [Tingley, Kevin](#); [Tricas, Marisa](#); [Waite, Andrew](#); [Walker, Mary](#); [Watson, Jane](#); [Wisniewski, Patti-Kay](#); [Yeziarski, Michelle](#); [Young, Dwane](#); [Zapata, Cesar](#)  
**Subject:** Re: OW Management Report for Hurricanes Harvey, Irma and Maria for 9/28/2017  
**Date:** Thursday, September 28, 2017 3:33:21 PM  
**Attachments:** [pastedImage.png](#)  
[pastedImage.png](#)  
[OW Management Report Harvey Irma 9282017.docx](#)

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See attachment.

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**From:** EOC Water  
**Sent:** Thursday, September 28, 2017 4:31 PM  
**To:** Allenbach, Becky; Apanian, David M.; Bissonette, Eric; Brown, Jamesr; Carroll, Craig; Casillas, Laura; Cooper, Tiffany; Diaz, Denisse; Dwyer, Stacey; EOC Environmental Unit; EOC Situation Unit; Eoc, Epahq; FEMA R2 ESF#10 Desk; FEMA-NRCC-ohs@fema.dhs.gov; fema-nrcc-ohul@fema.dhs.gov; Fencil, Jeffrey; Forsgren, Lee; Foster, Althea; Geliga, Jaime; Goldbloom-Helzner, David; Gray, David; Greenwalt, Sarah; Honker, William; Hosch, Claudia; Ison, Dawn; Kogan, Joshua; Liguori, Alex; McCasland, Mark; Miller, Gary; Negron, Nesmarie; Newberry, Debbie; Ngo, Kim; Oh, Peter; OW SES Managers and Supervisors; Pabst, Douglas; Pellegrino, Carl; Pickard, Brian; Restivo, Angela; Rodriguez, Jose; Senft, Lea; Smalley, Bryant; Thomas, Chris; Tiago, Joseph; Tingley, Kevin; Tricas, Marisa; Waite, Andrew; Walker, Mary; Watson, Jane; Wisniewski, Patti-Kay; Yeziarski, Michelle; Young, Dwane; Zapata, Cesar  
**Subject:** OW Management Report for Hurricanes Harvey, Irma and Maria for 9/28/2017

Attached and pasted below is the OW Management Report for Hurricanes Harvey, Irma and Maria for 9/28/2017.

Jeff Fencil  
EOC Water Desk  
(202) 250-8920

**EPA HQ:**  
Water Desk Staffing for the coming week:  
Thursday 9/28: Jeff Fencil  
Friday 9/28-Saturday 9/29: Kevin Tingley  
Sunday 9/30: Nushat Thomas

#### Notable Updates

- **Region 2, Puerto Rico: Caribbean Environmental Protection Division (CEPD) continued field inspections and visited several Puerto Rico Aqueducts and Sewers Authority (PRASA) drinking**

water and wastewater facilities. According to PRASA, 45% of clients have access to drinking water. PR also currently has an island-wide boil water order. Most PRASA wastewater facilities are not operational, and some that are need more fuel to power generators.

- Region 2, St Croix: A joint EPA and Department of Planning and Natural Resources (DPNR) team continued to sample public drinking water systems. These sampled facilities are up and operating, and are part of approximately 150 total facilities on the island. Processed (Colilert) and recorded the results of the 9 samples collected on 9/25-3 tested positive for coliform, 17 samples collected on 9/26 – 8 tested positive for coliform and 12 samples collected on 9/27– results pending.
- Region 2, USVI: EPA in coordination with VIWMA assembled a status report of wastewater facilities by contacting them. The report will be used for prioritization for field assessments and providing critical resources to the facilities. Most of the facilities are currently running on generator power. Fuel is becoming an issue on the islands and the majority of the facilities on generator power may not be able to sustain operations due to lack of fuel.
- Per the Florida Department of Health's website, of the 478 Boiler Water Notices issued since September 11, 380 of which have been rescinded and 98 active.

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### **Hurricane Maria and Hurricane Irma Update – Puerto Rico and US Virgin Islands**

As of 0500 EDT September 28th, Hurricane Maria has strengthened into a Category 1 Hurricane and was 275 miles east-northeast of Cape Hatteras, NC. Maximum sustained winds were 70 mph; this broad system is moving east-northeast at 8 mph and, as she weakens in the next 36 hours, will move rapidly away from east coast. Flash flood warnings remain in effect through late tonight for Isabelita and Quebradillas (northwest Puerto Rico) as well as Cabo Rojo, Mayaguez, San German and Hormigueros (southwest Puerto Rico). Heavy rainfall is anticipated Friday and Saturday for Puerto Rico and the US Virgin Islands (USVI) which will aggravate already swollen rivers and low-lying areas. Flood warnings are in effect through this afternoon for Cabo Rojo, Mayaguez, San German and Hormigueros (southwest Puerto Rico).

**The Puerto Rico (PR) and USVI Emergency Operations Centers (EOCs) remain at Full Activation.**

On 9/20, The President signed Disaster Declarations FEMA-4339-DR for PR and FEMA-4340-DR for the Territory of the USVI for Hurricane Maria. Additionally, the President has signed Emergency Declarations FEMA-3391-EM for PR and FEMA-3390-EM for the Territory of the USVI for Hurricane Maria.

As of 9/27/17, the personnel information from the EPA re-deployment plan was provided to FEMA so flights and lodging needs can be coordinated for the first wave of EPA responders. Flights for EPA personnel continued to be postponed, as the priority is still the life-saving and life sustaining mission. We will keep pursuing FEMA flights, however we are also coordinating with the U.S. Coast Guard for possible flight space as they move people and equipment into the U.S. Caribbean. Suitable lodging on PR remains a challenge. We continue to pursue berthing space on the various FEMA supported vessels arriving in PR.

- Puerto Rico: 120 people (50 people on 9/24 + 50 people on 10/1 + 20 people on 10/7)

- St Croix: 88 people (20 people on 9/27 + 34 people on 9/30 + 34 people on 10/2)
- St Thomas: 68 people (34 people on 9/28 + 34 people on 10/2)

Region 2 continues to reach out and contact CEPD personnel post storm. In PR, communications are very difficult and a majority of employees have not yet been accounted for. As of 9/27/2017, the Director and Deputy Director have been able to account for 51 of 56 employees based in PR. In the USVI both employees are safe and in contact with EPA responders.

### **Local/State Activities**

#### **Puerto Rico:**

There is a 100% power outage in PR. The Director of Puerto Rico Electric Power Authority (PREPA) indicated that the power system is non-functioning. It faced severe and catastrophic structural damage in the distribution lines and it will take many months for repairs and reconstruction.

**No new updates on these dams.** USACE inspected Toa Vaca and Guayabal Dams and reported no structural damage; however, both dams are releasing at higher than normal levels. USACE assessment of the Guajataca Dam found the lower part of the concrete spillway slab has collapsed and the current section that is remaining appears to be undercut by approximately 15 feet. The dam is still intact but does need to be reinforced to ensure stability. The water level behind the dam needs to go down before a comprehensive assessment of the dam can be performed.

#### **U.S. Virgin Islands (USVI):**

As of 0830 on 9/27/2017, power outages for USVI include: St. Thomas: 19,574 (99%); St. John: 2,893 (100%); and St. Croix: 25,274 (90%). FEMA has indicated that there will be two power-supplied labs: one in St. Thomas (supplied with a functioning generator) and one in St. Croix (pending generator installation).

Emergency call centers have been activated in both island districts (7 am - 11 pm daily). The call centers will be the primary means by which residents can report service interruptions as reconstruction and restoration takes shape. The Emergency Call Center number on St. Croix is 340-773-0150 and on St. Thomas - St. John, the number is 340-774-1424.

### **Federal Activities**

#### **FEMA:**

The USACE has received a mission assignment under ESF 3 for water and wastewater Subject Matter Experts (SMEs) to assess PRASA facilities in response to Hurricane Maria in Puerto Rico. USACE and EPA are coordinating a potential sub-tasking for EPA support similar to that done in Florida for Hurricane Irma.

**FEMA National Response Coordination Center (NRCC) remains at Level I (Full Activation).** The NRCC in Colt's Neck NJ has transferred all operations from that location to the NRCC in Washington, D.C. Personnel are developing plans for the resumption of post-storm activities, including assessments at regulated facilities and NPL/Removal sites.

On 9/20/2017, The President has signed a Disaster Declaration FEMA-4340-DR for the Territory of the U.S. Virgin Islands for Hurricane Maria. On 9/20, The President has signed a Disaster Declaration FEMA-4339-DR for Puerto Rico.

### **EPA Region 2 Activities**

The Regional Emergency Operation Center (REOC) Planning and Operations Sections are using Hurricane Irma assessment plans to develop post-Hurricane Maria plans for the assessment of fixed facilities, Superfund sites, critical infrastructure, areas of special concern, and debris management. EPA's water assessment team arrived in St. Croix on 9/24/2017 to address drinking water needs and conduct wastewater assessments at facilities that service hospitals.

On 9/23/2017, EPA issued an order to FEMA and the Department of Defense (DOD) that provides direction on supplying of clean drinking water in the U.S. Virgin Islands in response to impacts to the island's drinking water system from Hurricane Maria and Hurricane Irma. The order authorizes FEMA and DOD to install and operate temporary water treatment units that will provide a supply of clean drinking water. The order is at

<https://response.epa.gov/sites/12403/files/USVI%20SDWA%20Order%20Sept%202023.pdf>.

The National Disaster Recovery Framework (NDRF) has not yet been activated in either PR or the VI. There is an expectation that it will be activated asap and therefore all partners are being engaged for awareness, planning and visibility. EPA has already provided data as part of the advanced evaluation and will continue to do so.

### **Drinking Water and Wastewater System Status**

#### **Puerto Rico:**

According to PRASA, 45% of clients have access to drinking water. PR also currently has an island-wide boil water order. Most PRASA WW facilities are not operational, and some that are need more fuel to power generators. Of PRASA's total 52 total plants, 9 are operational, 19 are non-operational, and 24 have an unknown operational status.

CEPD began field inspections on 9/26. The following are PRASA Water Treatment Plants (WTP) that have been inspected to date: Guaynabo/Los Filtros WTP, Enrique Ortega/La Plata WTP, Sergio Cuevas/Carraízo WTP, and Río Blanco WTP (site visit to be conducted today, September 27). The following are PRASA Waste Water Treatment Plants (WWTP) that have been inspected to date: Carolina WWTP, Puerto Nuevo WWTP, Bayamón WWTP, Toa Alta, Yabucoa WWTP, Humacao WWTP, Dorado WWTP, and Vega Baja WWTP.

CEPD and CWD have continued phone calling on the 300 non-PRASA drinking water facilities; however, as many of the facilities are remote, contact has yet to be made with a facility. Voice messages have been left.

Due to the current unreliability of the existing water service and the critical need to maintain the radar systems there, the Federal Aviation Administration (FAA) is looking to install a new well as opposed to pulling from an existing one at the San Juan Airport. The FAA is requesting assistance from EPA to determine if there are any sources of oil or other contamination so they can determine if drilling a well at this site would be a viable option.

**Virgin Islands:** <http://www.viwapa.vi>

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## U.S. Virgin Islands Water and Power Authority (WAPA)

[www.viwapa.vi](http://www.viwapa.vi)

U.S. VIWAPA Home page ... Bill Pay; Change Address; Consumer Production Reports; Energy Conservation Tips

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On 9/23/17, EPA Region 2 issued an order pursuant to the SDWA that authorized FEMA/DOD to pump drinking water to the USVI. FEMA/DOD are working to deploy 4 Reverse Osmosis (RO) units in St Croix to deliver drinking water to the following impacted areas (Stoney Ground, Cane Bay, Altima and Cramer Park). The EPA Order expires on 10/8/17. Tentative locations for the RO units have been selected on the Western side of the island, but treatment has not started.

EPA will continue working with DPNR to prioritize drinking water sampling locations for St. Croix, St. Thomas, and St. John. In addition to developing the target lists, EPA and DPNR will perform some sampling and assessments at several facilities. EPA water assessment and sampling teams arrived in

St. Croix on 9/24/2017. Sampling activities commenced on 9/25. Additional assessment teams are preparing to re-deploy to the USVI in accordance with the EPA Region 2 Mobilization and Resource Plan.

Ocean Systems water testing: A generator will be shipped from PR to resolve power issues at the St. Croix lab. The St. Thomas lab received its generator and is operational. Weston, EPA and Ocean Systems laboratory personnel met to discuss the contracting of Ocean Systems for sampling and lab analysis on St. Croix, St. Thomas, and St. John.

As for wastewater, EPA in coordination with VIWMA assembled a list by contacting the facilities (see the list below under each island). The report will be used for prioritization for field assessments and providing critical resources to the facilities. Most of the facilities are currently running on generator power. Fuel is becoming an issue on the islands and the majority of the facilities on generator power may not be able to sustain operations due to lack of fuel.

St. Croix: Per the VIWAPA website, there are 3 days of emergency water storage available. Additional storage is continuing to be built.

Seven Seas water production plant is operational. Storage at Richmond water tank increased to 7.4 million gallons, a three-day supply. The Contentment, Richmond and Concordia pump stations are on line. Water service is slowly expanding throughout the town of Frederiksted as the system becomes pressurized. Water crews are surveying and repairing leaks as they are discovered on the system. The entire St. Croix water distribution system is expected to be fully pressurized shortly.

The Concordia potable water pump station on St. Croix is on line. Overnight, the Kingshill tank should begin to build storage and the west end of the island should begin to receive potable water service.

A joint EPA and DPNR team sampled several public drinking water systems. These facilities are up and operating, and are part of approximately 150 total facilities on the island of St. Croix. Samples were analyzed for Total and fecal coliform and ecoli utilizing Colilert kits. Processed (Colilert) and recorded the results from the following:

- 9 Samples were collected on 9/25/2017 – 3 tested positive for coliform. Yesterday, 9/27, EPA in coordination with DPNR contacted the proprietors of the affected drinking water systems. The proprietors disinfected the systems. The proprietor of one system switched water sources from cistern to WAPA provided water. EPA and DPNR are coordinating efforts to resample the systems after disinfection.
- 17 samples were collected on 9/26/2017 – 8 tested positive for coliform. EPA is working today (9/28) with DPNR to contact the proprietors of the affected systems to ensure the proprietors begin disinfecting their systems.
- 12 samples were collected on 9/27/2017 – results due later today (9/28).

Wastewater: The main treatment station located at the airport is operating on primary power. No critical needs at this time. 2 main feeders need a generator for power, 1 feeder has a generator. 3 lift stations are bypassing due to no power and all of them need a generator.

St. John: Per the VIWAPA website, there are four days of emergency storage available. Additional storage is continuing to be built.

Wastewater: 3 facilities operating on generator power and 3 facilities not operational due to no power. All need a generator.

St. Thomas: Per the VIWAPA website, there are three days of emergency storage available. Additional storage continuing to be built. Potable water service was restored to Government Hill and Blackbeard's Hill on Wednesday. WAPA is working to re-energize the Bergs Home pump station to resume service in upper Hospital Ground. As electrical service is restored to other pump stations, areas including Savan, Altona and the Contant Knolls housing community will experience a resumption of potable water service.

Water production at the St. Thomas Seven Seas resumed at max capacity on September 25th.

Wastewater: 4 pump stations are currently bypassing to residential streets due to no power and all of them need a generator. 1 pump station is operating on generator power. 3 WWTP are currently operating on generator power and 1 WWTP is having issues with their clarifier.

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### **Hurricane Irma Update – Florida and Georgia**

#### **Local/State and other Federal Agency Activities**

The FL EOC is at Partial Activation and the MS, TN, and, NC EOCs are at Monitoring. The EPA Region 4 REOC remains at Level 3 activation.

The FEMA Region IV RRCC transitioned from Level II (full activation) to normal operations. All members of the RRCC were released, including staff under ESF-10.

#### **EPA Region 4 Activities**

The EPA Region 4 WPD received funding totaling \$75,000 under an ESF-3 MA sub-task to support the USACE drinking water and wastewater facility assessments. The WPD continues to coordinate with the FDEP and the USACE. The USACE request for additional ESF-3 support has been fulfilled.

The Region 4 Facility Assessment Support Team (FAST), completed 934 call-down assessments as of 9/21/2017. EPA Water Team performed an assessment of the Waste Water Treatment Plant(WWTP) in Everglades City on 9/21/2017. The USACE/EPA Water Team completed assessments in Everglades City and redeployed, 9/22/2017, to Key Largo to assess the WWTP. The USACE/EPA Water Team inspected booster stations along the drinking water pipeline to Key West.

On 9/25/2017, FDEP requested EPA's FAST assistance in assessing the status of 1,255 non-community public water systems. For consistency, FAST conducted a Just-in-Time Training, to outline procedures for conducting phone-assessments of non-community drinking water systems. Assessment activities began on September 26.

As of 9/27/2017, the USACE and EPA WPD continue to assist FDEP in assessing the status of drinking water and wastewater facilities. Water team members in the EPA Region 4 office have conducted 183 assessments, leaving 71 that appear to need a site visit. The Key Largo Water Team completed FDEP-assigned field assessments and met with utility personnel regarding the operational status of their drinking water system. The Naples Water Team completed FDEP-assigned assessments with visits to two public water systems and a wastewater system. Pending receipt of new assignments, EPA Water Team members will demobilize tomorrow (9/28).

#### **Drinking Water and Wastewater System Status**

**Florida:** See tables below for damage assessment information for community drinking water systems and POTWs.

Boil water notice (BWN) or advisories are published on the Florida Department of Health's website (<http://www.floridahealth.gov/environmental-health/drinking-water/boil-water-notice.html>).

As of 0900 ET, 9/27/17, the website lists 478 BWNs issued since September 11, of which 380 have



been rescinded, resulting in 98 active BWNs.

<b>Total Number of Community Drinking Water Systems (CWS) and Total Population Served in Florida</b>				
	Large CWS (Over 3,300)		Small CWS (under 3,300)	
	# Systems	Population Served	# Systems	Population Served
Operational:	394	19,205,380	1,192	683,098
Partially Operational:	2	83,084	15	16,284
Non Operational:	0	0	3	255
Unknown:	0	0	34	10,916
Totals:	396	19,288,464	1,244	710,553
Boil Water Notices 98 (478 issued – 380 rescinded)				
<b>Comments:</b> Data is compiled from the State of Florida's StormTracker system. The inventory of public water systems in StormTracker consists of all 1,630 Community Water Systems (CWS) and 11 non-community public water systems regulated by the State. These facilities were identified by Florida as the most critical for operational status determinations following major disasters. For convenience, all 1,641 facilities are reported as "CWS" in this table.				
<b>Operational:</b> Facility producing drinking water for greater than 90% of customers under normal operating conditions				
<b>Partially Operational:</b> Facility producing drinking water under adverse conditions and/or supplying less than 90% of customers				
<b>Non Operational:</b> Facility not producing or supplying drinking water				
<b>Unknown:</b> Status of facility unknown at this time				

<b>Total Number of Publicly-Owned Wastewater Treatment Plants (POTWs) All Florida Counties</b>			
	NPDES Permitted Facilities		State Permits (Non-NPDES)
	POTW	Non-POTW (Industrial)	
Operational:	143	242	1,711
Partially Operational:	2	1	40
Non Operational:	0	0	92
Unknown:	0	0	166
Totals:	145	243	2,009
<p>Comments: Data is compiled from the State of Florida's StormTracker system. The NPDES universe tracked in StormTracker represents a subset of the total inventory of NPDES permitted systems that are identified by the State of Florida as the most critical for operational status determinations following major disasters.</p> <p>This report shows that 99% of the POTWs are Operational, no change since last report of 99%. This report shows that 99% of the Non-POTW NPDES Permitted Facilities tracked in StormTracker are Operational, no change since last report of 99%.</p>			
<p><b>Operational:</b> Facility &amp; associated collection system is properly conveying, and effectively providing wastewater treatment, in accordance with applicable permit conditions and regulations. (Operating on full or backup generator power.)</p> <p><b>Partially Operational:</b> Facility and/or associated collection system is properly conveying and providing wastewater treatment at a compromised capacity, i.e. one or more treatment train components are non-operational, one or more lift stations are non-operational, etc.</p>			



***Non Operational:** Facility and/or associated collection system is not providing wastewater treatment in accordance with applicable permit conditions and regulations.*

***Unknown:** Status of facility unknown at this time*

**Georgia:** See tables below for damage assessment information for community drinking water systems (last update: 9/20/2017).

Total Number of Community Drinking Water Systems (CWS) and Total Population Served in Georgia		
	# Systems	Population Served
Operational:	186	7,203,619
Operational w/ Conditions:	8	53,917
Non Operational:	3	40,322
Unknown:	**	2,424,980
Totals:	1,749	8,917,820
Boil Water Notices	75 Boil Water Advisories reported to the SOC.	
<b>Comments:</b> Data is compiled from data collected by Georgia EPD drinking water staff, EPD regional offices and the ESF-3 Water Desk at the Georgia SOC. The inventory of public water systems in <i>Georgia</i> consists of all 1,749 Community Water Systems (CWS). **EPD has provided status updates of all community water systems with surface water sources. All community water systems using ground water are being contact by EPD District Offices and associated resources requests are forwarded to the SOC ESF-3 desk. All community water systems using surface water as a source have been assessed.		
<b><i>Operational:</i></b> Facility producing drinking water for greater than 90% of customers under normal operating conditions.		
<b><i>Operational with Conditions:</i></b> Facility producing drinking water under consumer advisory, e.g., boil water advisories issued by water systems.		
<b><i>Non Operational:</i></b> Facility not producing or supplying drinking water		

**Federally Recognized Tribes:**

No significant updates were provided by the Region 4 Tribes during the reporting period.

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### **Hurricane Harvey Update**

#### **Federal Activities:**

Cost-share for response activities increased to 10% at midnight on September 22, 2017. Response efforts associated with Hurricane Harvey have transitioned to recovery.

#### **EPA Region 6 Activities:**

Drinking water and wastewater assessment teams completed their emergency assessments of community water systems and have demobilized. The information below is from the Texas Commission on Environmental Quality website at <https://www.tceq.texas.gov/response/hurricanes>; last update was 9/22/17.

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[Hurricane Response - TCEQ - www.tceq.texas.gov](http://www.tceq.texas.gov)

[www.tceq.texas.gov](http://www.tceq.texas.gov)

Information you might need if you are affected by a tropical storm or hurricane.

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<b>Drinking Water</b>	<b>Number of Drinking Water Systems</b>	<b>Population</b>
Fully Operational	2,233	920,988
Boil Water Notices	46	14,446
Shutdown	5	1,088

<b>Wastewater and Sewage</b>	<b>Number of Wastewater Treatment Plants</b>
Fully Operational	1,719
Inoperable	9
Operating with Issues	25